Handicapped spiders at Notting Hill, Victoria

On 24 January 2013, within the space of about three minutes, I saw two spiders, each with only five legs, at our house in the Melbourne suburb of Notting Hill.

The first spider, in our bathroom, was a Daddy Longlegs, which had three legs on one side and two on the other (Fig. 1). It moved slowly and laboriously, rolling to one side as it walked. I took it outside and didn't see it again.

When I took the Daddy Longlegs outside, I saw the second spider, a huntsman, which had four legs on one side and one on the other (Fig. 2). It was under the eaves, clearly visible, and generally motionless during daylight hours. I saw a Spider hunting wasp only 3.5 m away, but it didn't find the huntsman on this occasion.

On the morning of 25 January the huntsman had moved about 400 mm to a position near the outer edge of the eaves (Fig. 3). By 7.30 pm AEDT it had moved another 15 mm so that its four left legs were in the evening sun. By 10 pm it had moved about another 4 mm to the very edge of the eaves, with one leg placed on the vertical section of the fascia board.

At 7.50 am on 26 January the spider was still in the same location and position, but when I looked again at 9.15 am it had vanished, probably taken by either a wattlebird or a Spider hunting wasp, both of which live in our garden.

It is not uncommon to see a spider with one or two legs missing, but rather rare to find one with three legs missing (Pasquet *et al.* 2011; pers. obs.). Spiders share the ability to shed appendages—a process known as autotomy, or self amputation—with many other invertebrates and some vertebrates. They shed legs that are grasped by a rival, or grasped or stung by a predator. This enables the spiders to escape danger, but can also be physically costly (Wrinn and Uetz 2007).

Studies of leg loss in two harvestman species *Leiobunum nigripes* and *L. vittatum* (Guffey 1999), a wolf spider *Schizocosa ocreata* (Wrinn and Uetz 2007; 2008) and an orb-weaving spider *Zygiella x-notata* (Pasquet *et al.* 2011) showed that spiders and harvestman species can manage the loss of one or two legs under laboratory conditions. The loss of three, however, can be a serious disadvantage (Guffey 1999), causing such problems as:-

- Reduced mobility
- Loss of fitness
- Loss of balance
- Impact on sensory function
- Reduced ability to catch prey

Fig. 1. Daddy Longlegs with only 5 legs.

Fig. 2. Asymmetrical Huntsman.

Fig. 3. Huntsman, with reduced mobility on only 5 legs.

- Difficulty in escaping from predators
- Reduction in mating success
- Inability to construct a normal web

Some of these problems were not very noticeable in a laboratory environment, but were evident in a simulated natural environment (Wrinn and Uetz 2008).

A spider's ability to cope with leg loss can also depend on which legs are missing. Anne Morton (pers. comm. 2014) has seen a huntsman cope quite well with three legs on one side and two on the other. The huntsman at Notting Hill had lost the first three legs on one side—a much more difficult situation.

The Daddy Longlegs, although having three legs on one side and two on the other, had obvious difficulty in moving as well as loss of balance, while the huntsman, which had lost the first three legs on one side, and which I didn't see move, travelled only a short distance and appeared badly incapacitated. Huntsman spiders normally conceal themselves during the day and hunt at night (Walker *et al.* 2003; pers. obs.). This huntsman could have hidden by moving 400 mm in a different direction, but instead moved to a location where it was both visible and accessible to predators.

Fully grown spiders cannot replace lost legs (Pasquet *et al.* 2011), but if not fully grown, many species can replace lost legs when they moult (however, two or more moults are necessary for full regeneration). I found a macro photography web site (Nicky Bay Photography 2013) describing a wall crab spider *Sianspinops* sp. that lost not only three legs on one side, but its palps as well. Although expected to die, this spider moulted and regenerated its legs and palps. The huntsman at Notting Hill did not seem to be quite fully grown, but would probably have been so after only one more moult, in which case its lost legs would never have fully regenerated.

References

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